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Prognostic significance of regional edema and quantitative assessment of late gadolinium enhancement in patients with acute myocarditis

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Background

Standard diagnostic CMR criteria for acute myocarditis have been proposed (ie Lake Louise criteria) based upon the any 2 of 3 approach which includes the presence of myocardial edema (T2), hyperemia/capillary leakage (early Gd enhancement: EGE) as well as fibrosis (late enhancement: LGE). However, there is a lack of prognostic data using these criteria. The aim of this study was to evaluate the diagnostic CMR criteria for the prediction of functional outcome in patients with myocarditis.

Methods

We studied 24 patients referred for acute myocarditis during the acute phase and 1 year thereafter. CMR studies included T2 weighted and contrast-enhanced T1 weighted (early and late enhancement) with a quantitative assessment of the regional and LGE.

Results

In the acute phase, edema (regional and /or global) was present in 67%, EGE in 62.5% and LGE in 54%. Edema %LV (2SD) was: 27.3±7.8; LGE %LV (2SD) was 20.5 ±14.2. At follow-up, EF significantly increased from 57± 5.5% to 60± 4.5% (p< 0.001). In a univariate analysis, LGE% LV was correlated to the change in EF over 1-year (r=0.704, p=0.04), in a multivariate analysis (linear regression), the combination of LGE%LV and regional edema serves as an independent predictor of an increase of EF (F=5.13, p=0.017)

Conclusion

In our preliminary experience, the combination of LGE with regional edema was an independent predictor of functional recovery during a 1 year follow-up.

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